EMX-CDV

Intel® Atom™ EMX-CDV Mini ITX Motherboard with Intel® ICH10R Chipset

Quick Installation Guide

1st Ed – 20 September 2012

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Part No. E2017XCDV00R

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

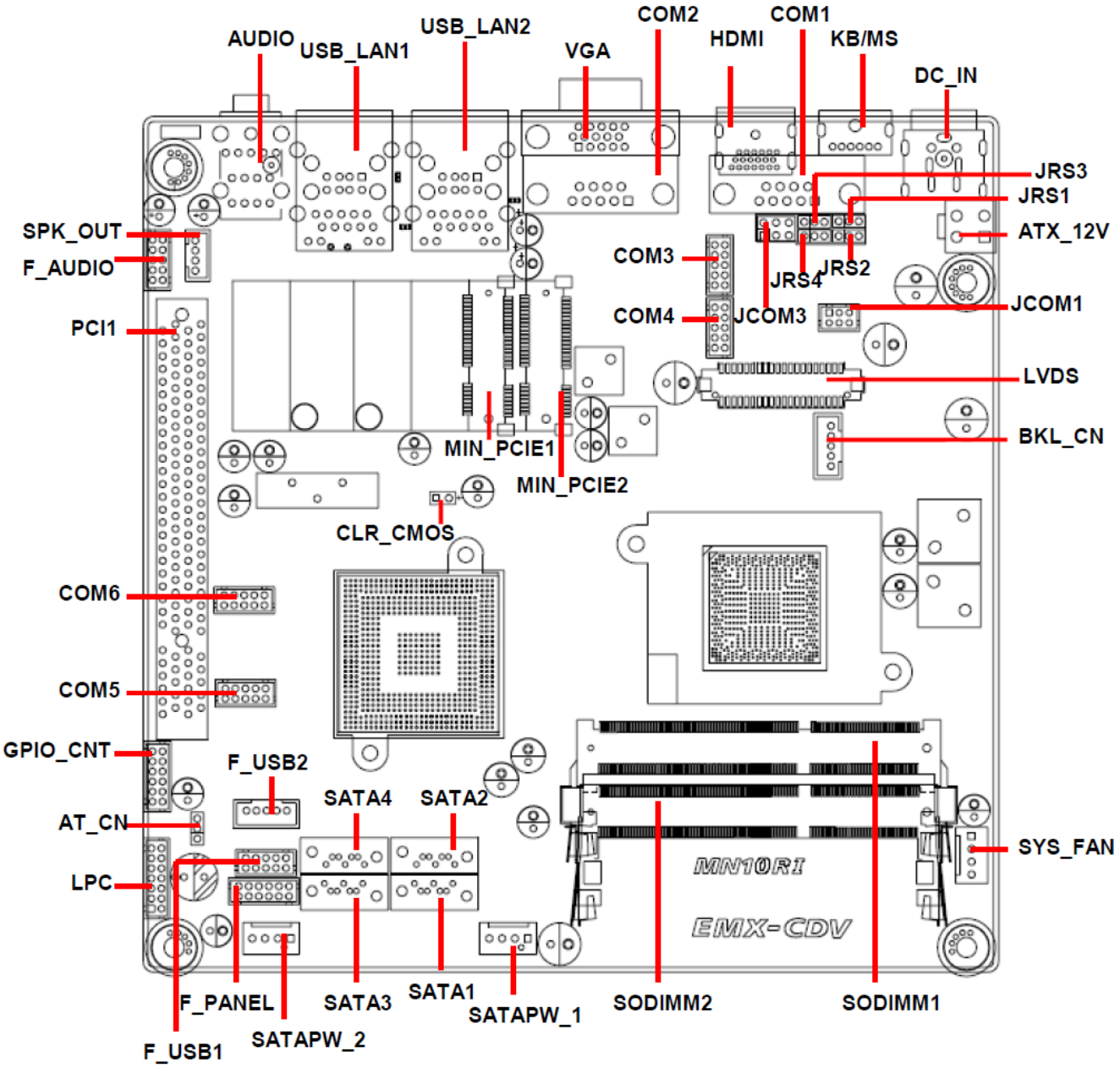
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EMX-CDV Mini-ITX Motherboard
- 1 x CD-ROM contains OS drivers/QIG/User's Manual
- 1 x COM cable
- 2 x SATA cable
- 2 x SATA Power Cable
- 1 x DC Jack to ATX Power Cable
- 1 x I/O shield

If any of the above items is damaged or missing, contact your retailer.

2. Hardware Configuration

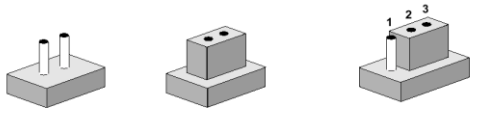
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
JRS1/2/3/4	Serial Port 1 Setting – RS232/422/485	3 x 1 header, pitch 2.00 mm
JCOM1	Serial Port 1 Select - RS-232/422/485	3 x 2 header, pitch 2.00 mm
JCOM3	Serial Port 3 RI Pin Signal Select – Ring/+5V/+12V	3 x 2 header, pitch 2.54 mm
AT_CN	Power Mode Select – AT or ATX	3 x 1 header, pitch 2.00 mm
CLR_CMOS	Clear CMOS	2 x 1 header, pitch 2.54 mm

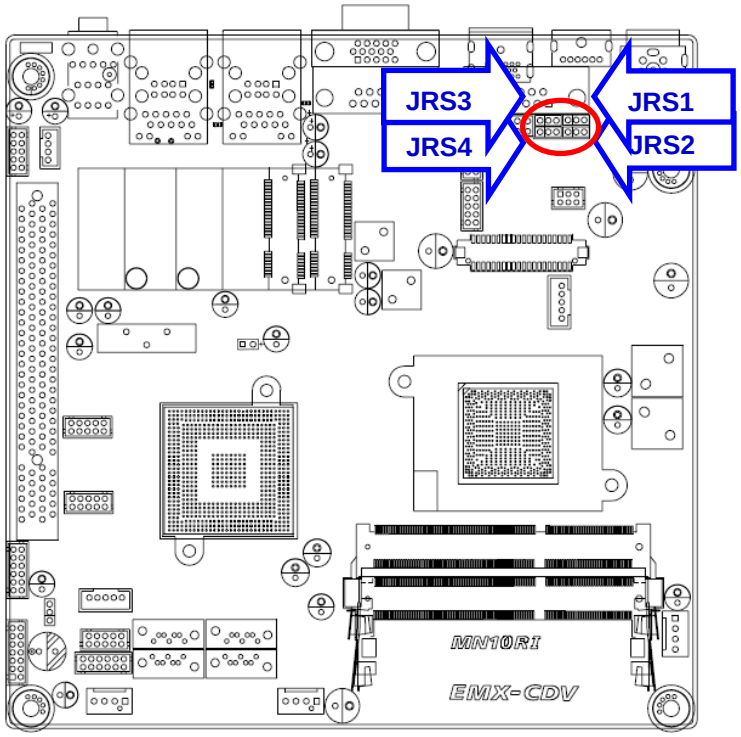
Connectors

Label	Function	Note
ATX_12V	ATX 4pin DC12	
SODIMM1	DIMM Slot DDR3	

SODIMM2	DIMM Slot DDR3	
SYS_FAN	System Fan Connector	4 x 1 wafer, pitch 2.54mm
COM1	Serial Port 1 Connector	D-sub 9-pin, male
COM2	Serial Port 2 Connector	D-sub 9-pin, male
COM3	Serial Port 3 Connector	5 x 2 wafer, pitch 2.00 mm
COM4	Serial Port 4 Connector	5 x 2 wafer, pitch 2.00 mm
COM5	Serial Port 5 Connector	5 x 2 wafer, pitch 2.00 mm
COM6	Serial Port 6 Connector	5 x 2 wafer, pitch 2.00 mm
LVDS	LVDS Connector	20 x 2 wafer, pitch 1.25mm
BKL_CN	LCD Inverter Connector	5 x 1 wafer, pitch 2.00mm
USB_LAN1	USB+LAN1	
USB_LAN2	USB+LAN2	
KB_MS	PS/2 Keyboard & Mouse Connector	
HDMI	HDMI	
VGA	VGA Connector	
Min_PCIE1	Mini PCIE Connector 1	
Min_PCIE2	Mini PCIE Connector 2 (co-lay mSATA)	
AUDIO	AUDIO Line-In/Line-Out/Mic-In	
PCI1	PCI Slot	
F_AUDIO	Front Panel Audio Connector	5 x 2 wafer, pitch 2.00 mm
SPK_OUT	Audio Amplifier Connector	4 x 1 wafer, pitch 2.00 mm
SATAII 1/2/3/4	Serial ATA Connector 1/2/3/4	
SATAPW_1	SATA Power 1	4 x 1 wafer, pitch 2.54mm
SATAPW_2	SATA Power 2 (Option)	4 x 1 wafer, pitch 2.54mm
F_USB1	USB Connector 1	5 x 2 wafer, pitch 2.00 mm
F_USB2	USB Connector 2	5 x 1 wafer, pitch 2.00 mm
GPIO_CNT	GPIO Connector	6 x 2 wafer, pitch 2.00 mm
LPC	Low Pin Count Connector	7 x 2 wafer, pitch 2.00 mm
F_PANEL	Front Panel Connector	6 x 2 wafer, pitch 2.00 mm
DC_IN	DC Power-In Connector	

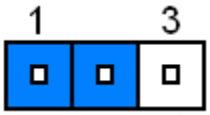
2.3 Setting Jumpers & Connectors

2.3.1 Serial Port 1 Setting - RS232/422/485 (JRS1, JRS2, JRS3, JRS4)

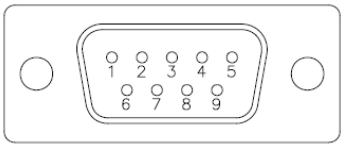


RS232*

RS422/RS485



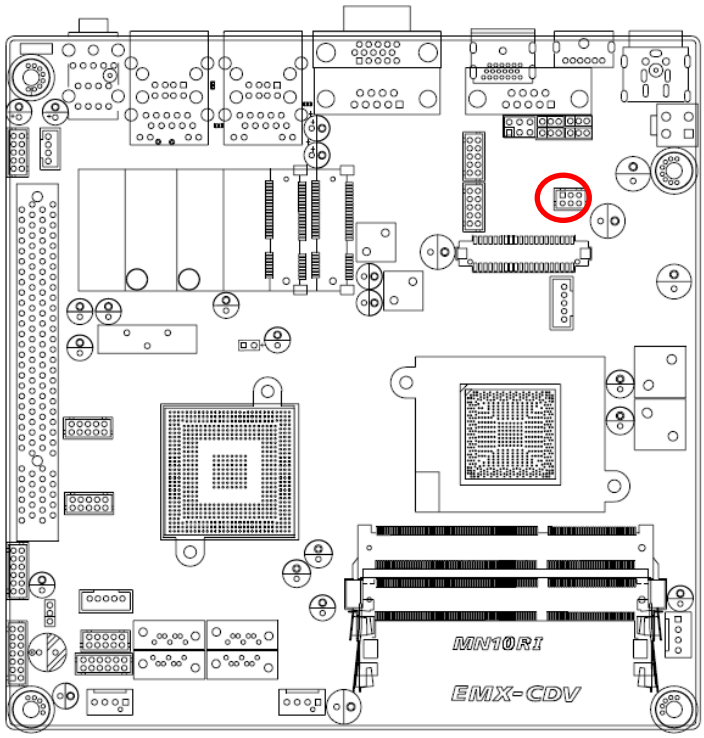
RS422/485 Pin Mapping



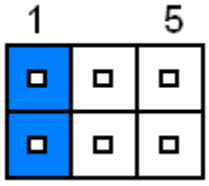
*** Default**

Pin	RS-232	RS-485	RS-422
1	DCD	TXD-	TXD-
2	RXD	TXD+	TXD+
3	TXD		RXD+
4	DTR		RXD-
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		
9	RI		

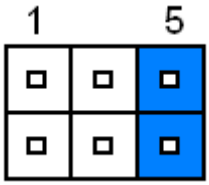
2.3.2 Serial Port 1 Select - RS-232/422/485 (JCOM1)



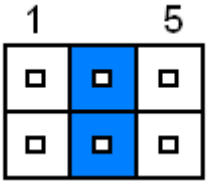
RS232*



RS485



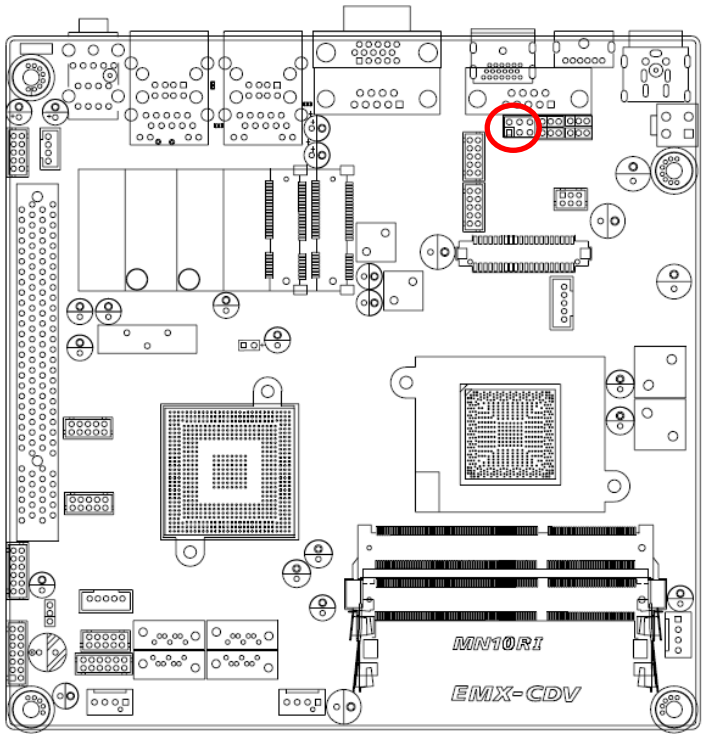
RS422



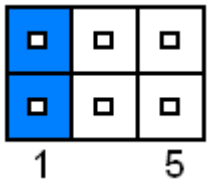
*** Default**

Signal	PIN	PIN	Signal
RXD232	1	2	RXD1
RXD422	3	4	RXD1
RXD485	5	6	RXD1

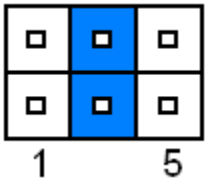
2.3.3 Serial Port 3 RI Pin Signal Select – Ring/+5V/+12V (JCOM3)



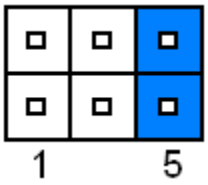
+5V



Ring*



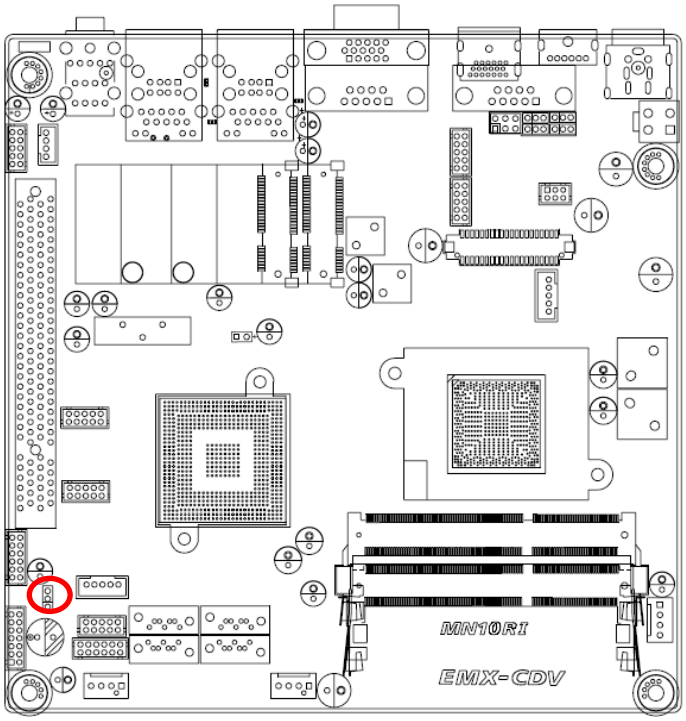
+12V



*** Default**

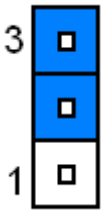
Signal	PIN	PIN	Signal
VCC	1	2	RI3-/5V/12V
NRI3-	3	4	RI3-/5V/12V
+12V	5	6	RI3-/5V/12V

2.3.4 Power Mode Select – AT or ATX (AT_CN)

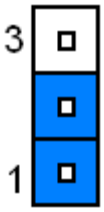


*** Default**

ATX *

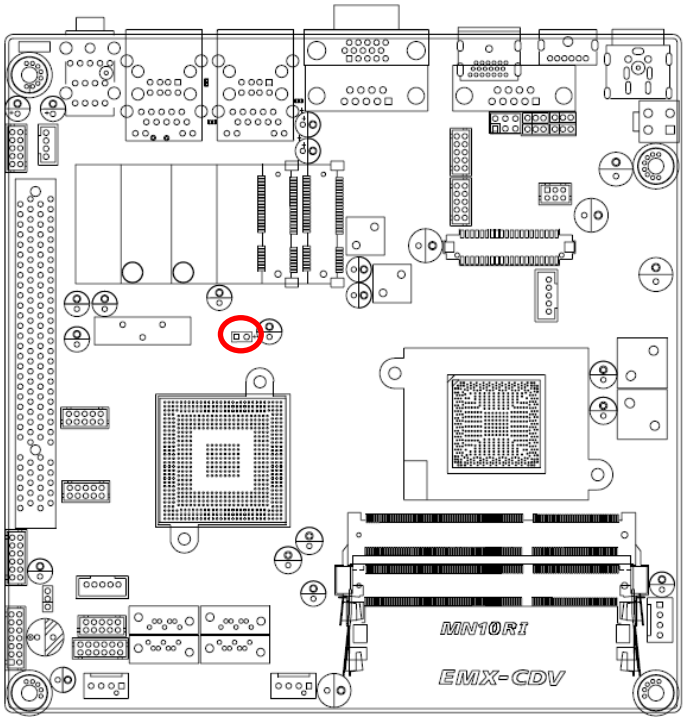


AT



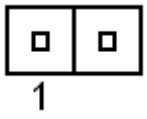
Signal	PIN
AT_PWR_F_BTN#	1
PWR_F_BTN#	2
NC	3

2.3.5 Clear CMOS (CLR_CMOS)

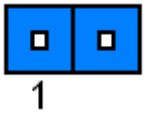


*** Default**

Normal *

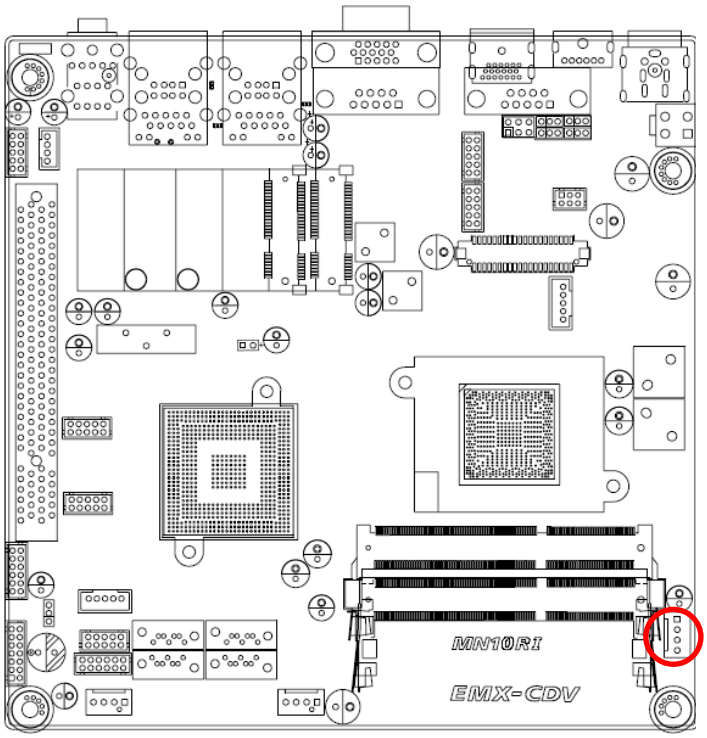


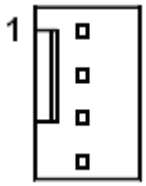
Clear



Signal	PIN
-RTCRST	1
GND	2

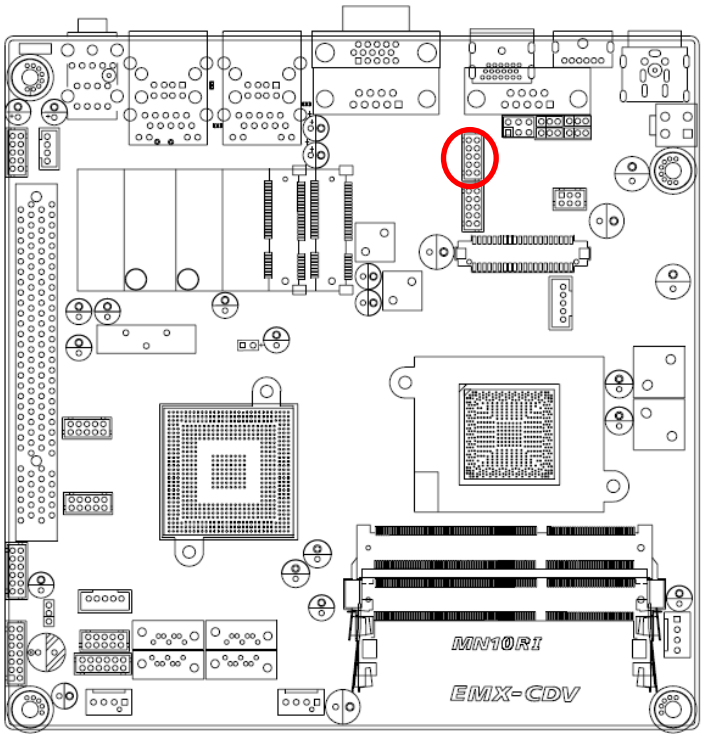
2.3.6 System Fan Connector (SYS_FAN)

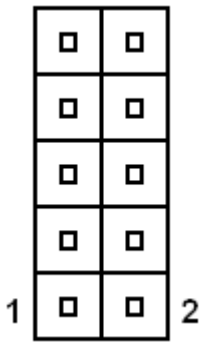




Signal	PIN
PWM Input	4
FANIO2	3
+12V	2
GND	1

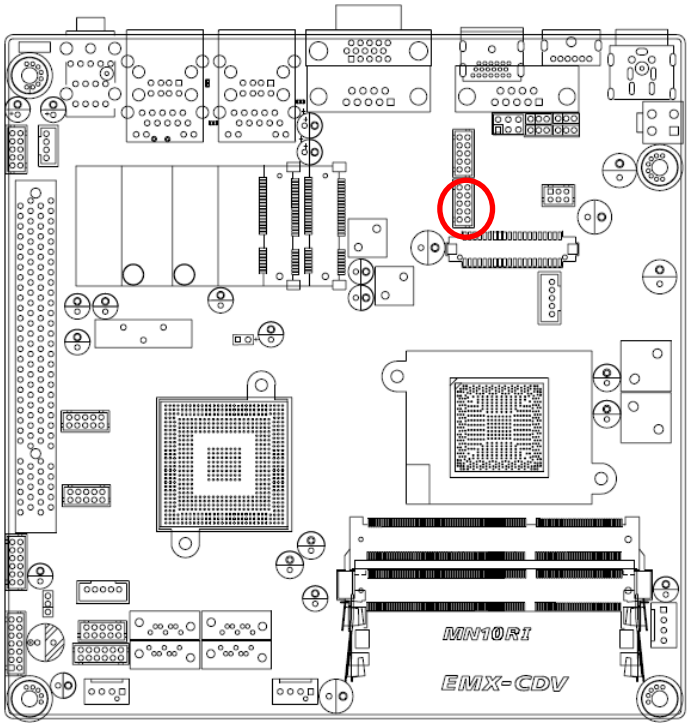
2.3.7 Serial Port 3 Connector (COM3)

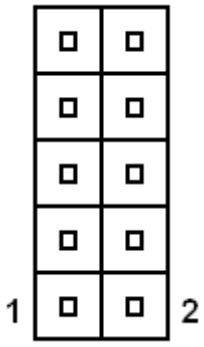




Signal	PIN	PIN	Signal
NC	9	10	RI3-/5V/12V
NCTS3-	7	8	NRTS3-
NDSR3-	5	6	GND
NDTR3-	3	4	NTXD3-
NRXD3-	1	2	NDCD3-

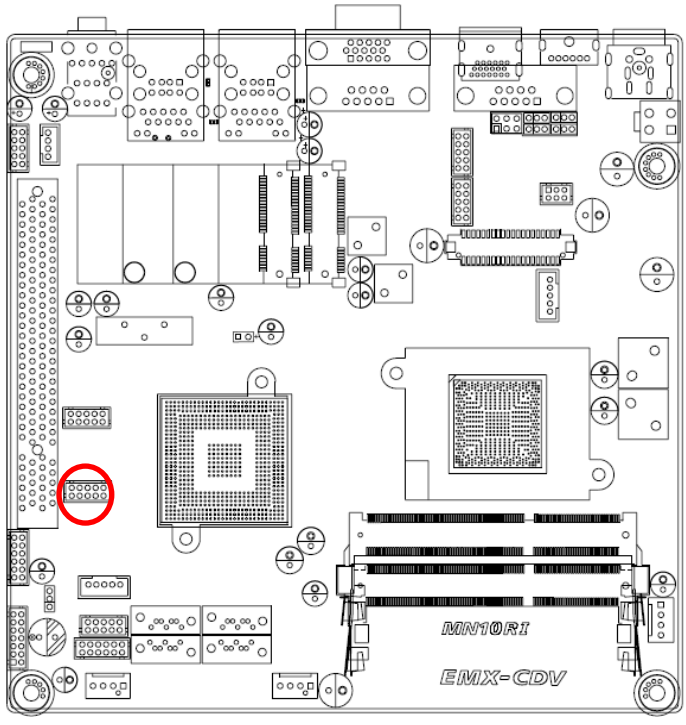
2.3.8 Serial Port 4 Connector (COM4)

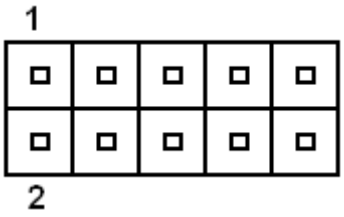




Signal	PIN	PIN	Signal
NC	9	10	NRI4-
NCTS4-	7	8	NRTS4-
NDSR4-	5	6	GND
NDTR4-	3	4	NTXD4-
NRXD4-	1	2	NDCD4-

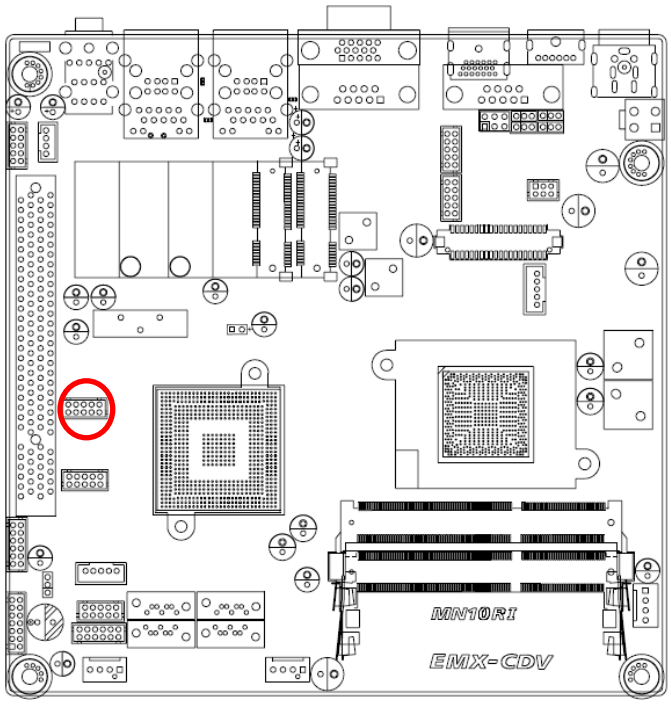
2.3.9 Serial Port 5 Connector (COM5)

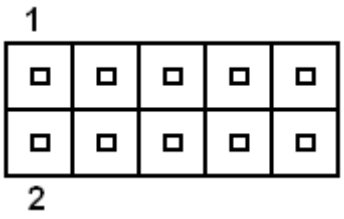




Signal	PIN	PIN	Signal
NC	9	10	NRI5-
NCTS5-	7	8	NRTS5-
NDSR5-	5	6	GND
NDTR5-	3	4	NTXD5-
NRXD5-	1	2	NDCD5-

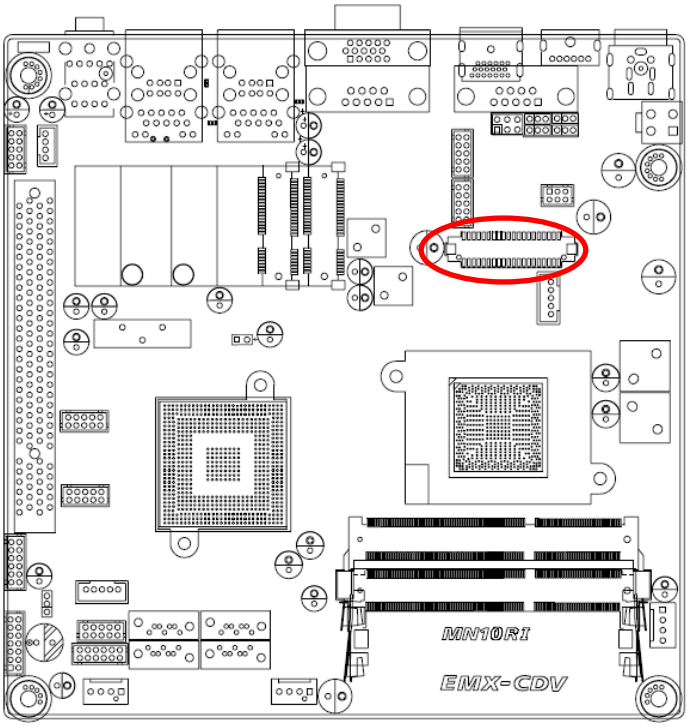
2.3.10 Serial Port 6 Connector (COM6)

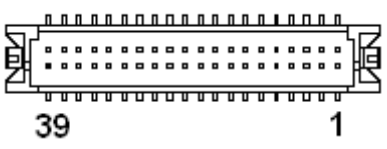




Signal	PIN	PIN	Signal
NC	9	10	NRI6-
NCTS6-	7	8	NRTS6-
NDSR6-	5	6	GND
NDTR6-	3	4	NTXD6-
NRXD6-	1	2	NDCD6-

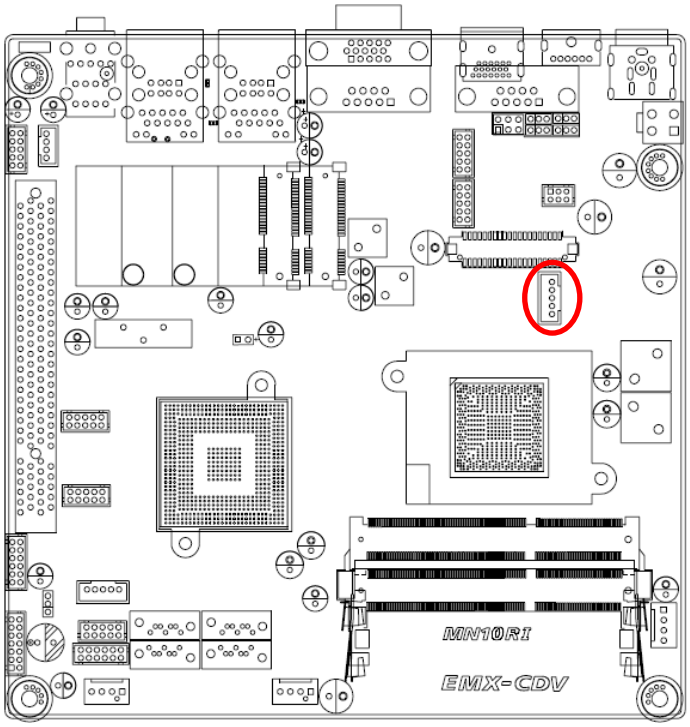
2.3.11 LVDS Connector (LVDS)





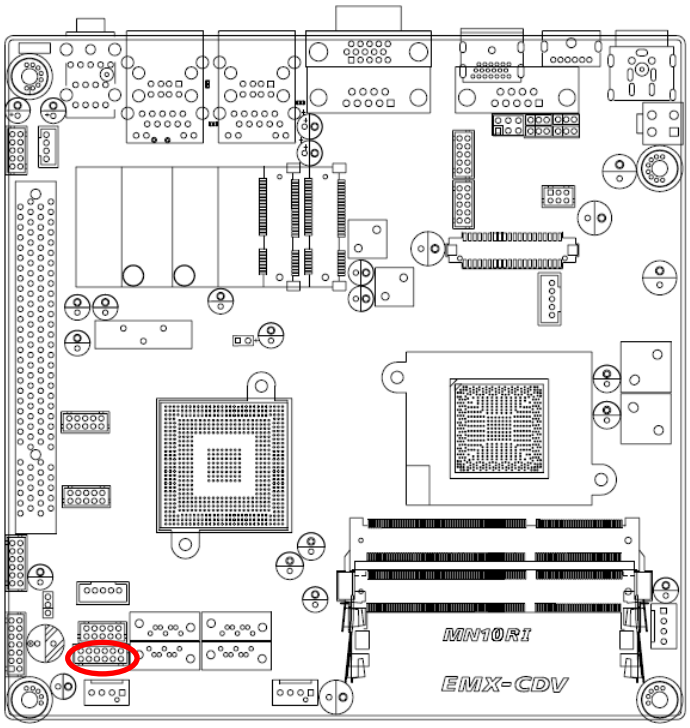
Signal	PIN	PIN	Signal
VCC3	1	2	VCC
VCC3	3	4	VCC
SCL1	5	6	SDA1
GND	7	8	GND
+RXO1_C	9	10	+RXO0_C
-RXO1_C	11	12	-RXO0_C
GND	13	14	GND
+RXO3_C	15	16	+RXO2_C
-RXO3_C	17	18	-RXO2_C
GND	19	20	GND
+RXE1_C	21	22	+RXE0_C
-RXE1_C	23	24	-RXE0_C
GND	25	26	GND
+RXE3_C	27	28	+RXE2_C
-RXE3_C	29	30	-RXE2_C
GND	31	32	GND
+RXECLKE_C	33	34	+RXECLKO_C
-RXECLKE_C	35	36	-RXECLKO_C
GND	37	38	GND
+12V	39	40	+12V

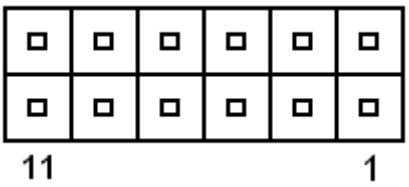
2.3.12 LCD Inverter Connector (BKL_CN)



Signal	PIN
+12V	5
GND	4
BKLTEN	3
BKLTCTL	2
VCC	1

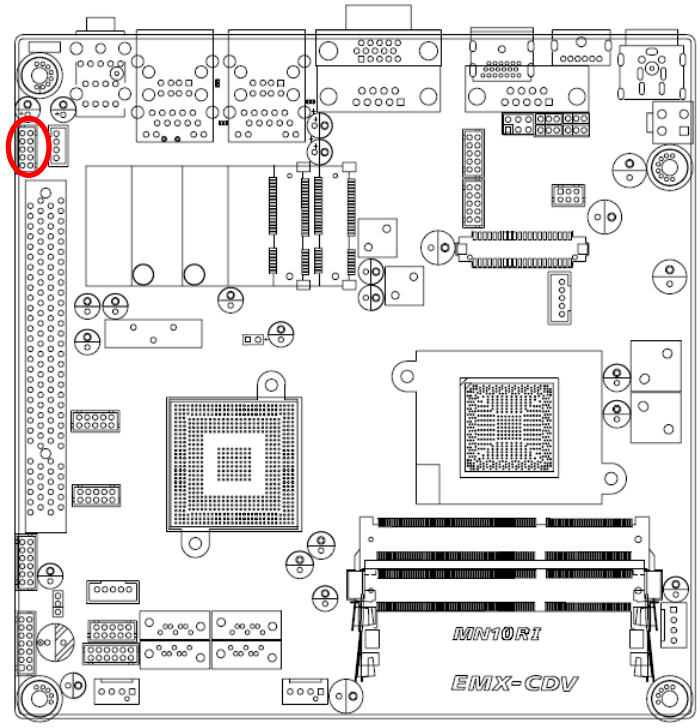
2.3.13 Front Panel Connector (F_PANEL)

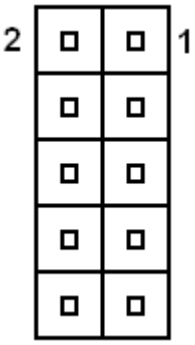




Signal	PIN	PIN	Signal
Standby Power LED+	11	12	Standby Power LED-
-INTRUDER	9	10	GND
SATA LED-	7	8	SATA LED+
Power LED+	5	6	Power LED GND
System Reset#	3	4	RST GND
Power Button#	1	2	Power Button GND

2.3.14 Front Panel Audio Connector (F_AUDIO)



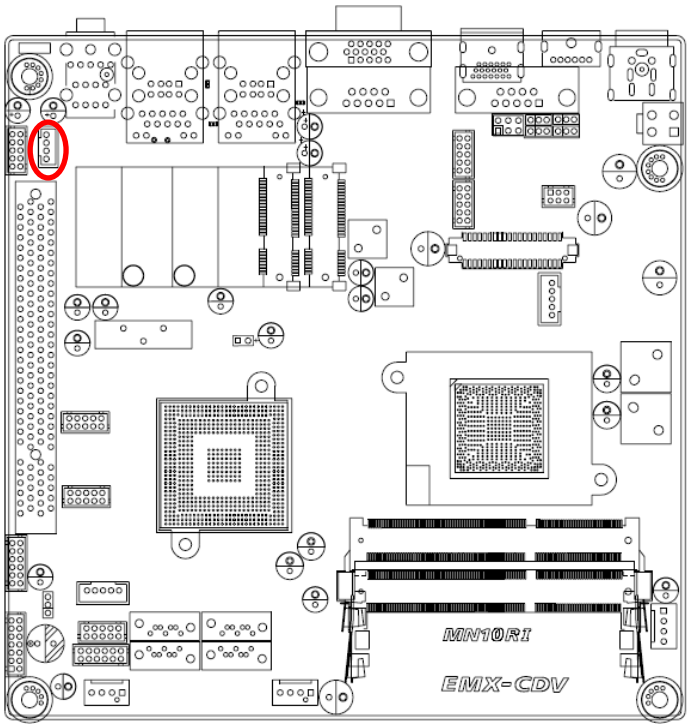


Signal	PIN	PIN	Signal
GND	2	1	MIC_L
-ACZ_DET	4	3	MIC_R
SRTN1	6	5	HPOUT_R_H
NC	8	7	FAUDIO_JD
SRTN2	10	9	HPOUT_L_H

2.3.14.1 Signal Description – Audio connector (F_AUDIO)

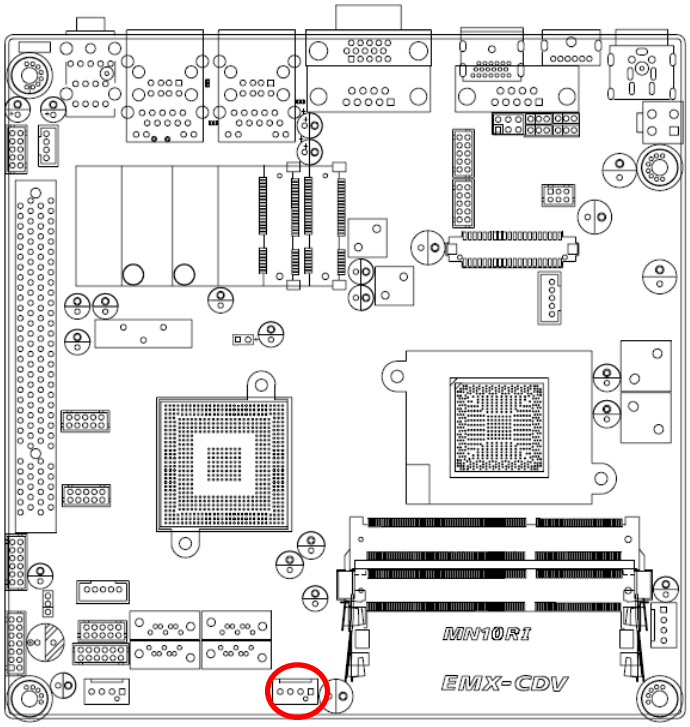
Signal	Signal Description
MIC_L	Front panel microphone left channel
MIC_R	Front panel microphone right channel
-ACZ_DET	Active low when an Intel® HD Audio dongle is connected
HPOUT_R_H	Front panel headphone right channel
HPOUT_L_H	Front panel headphone left channel
SRTN1	Jack detection for front panel microphone
SRTN2	Jack detection for front panel headphone
FAUDIO_JD	Front panel jack detect

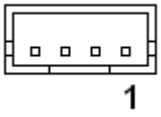
2.3.15 Audio Amplifier Connector (SPK_OUT)



Signal	PIN
OUT_R+	1
OUT_R-	2
OUT_L-	3
OUT_L+	4

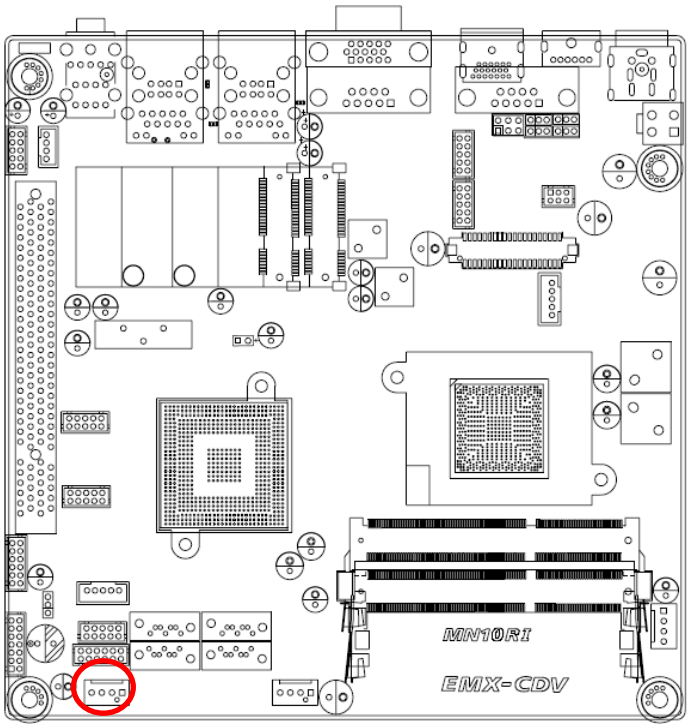
2.3.16 SATA Power (SATAPW_1)

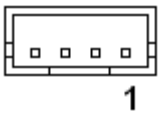




Signal	PIN
+12V	1
GND	2
GND	3
VCC	4

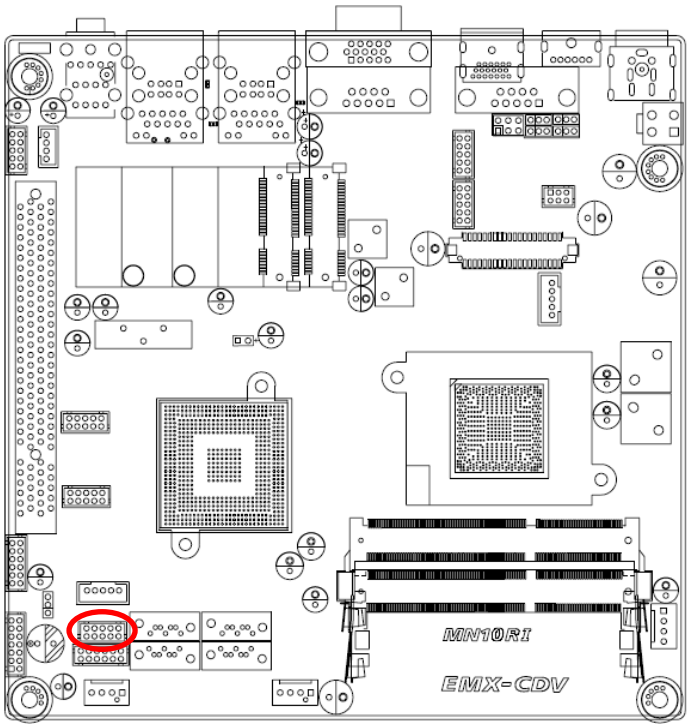
2.3.17 SATA Power (SATAPW_2)

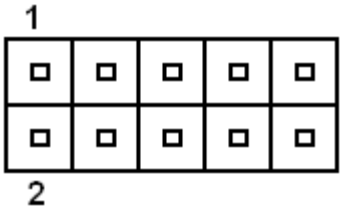




Signal	PIN
+12V	1
GND	2
GND	3
VCC	4

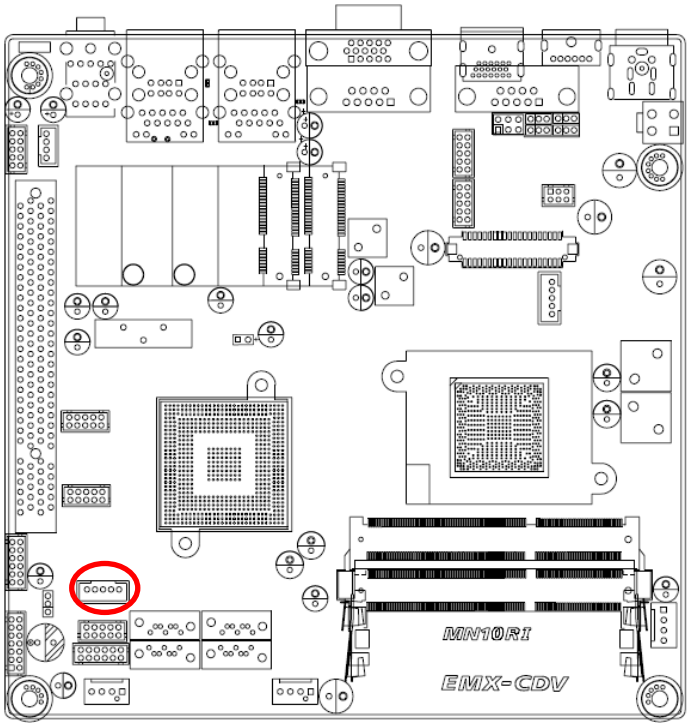
2.3.18 USB Connector (F_USB1)

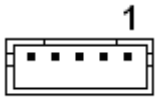




Signal	PIN	PIN	Signal
USB Power	2	1	USB Power
USBP0-	4	3	USBP1-
USBP0+	6	5	USBP1+
GND	8	7	GND
GND	10	9	GND

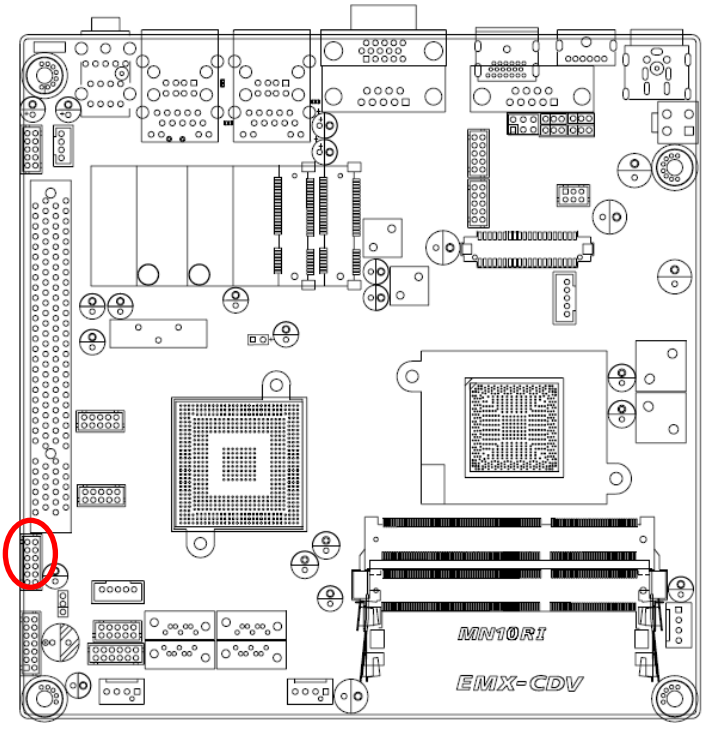
2.3.19 USB Connector (F_USB2)

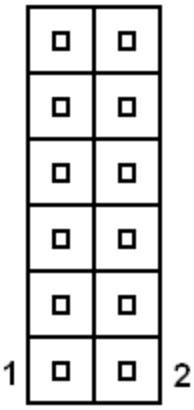




Signal	PIN
GND	1
GND	2
USBP2+	3
USBP2-	4
USB Power	5

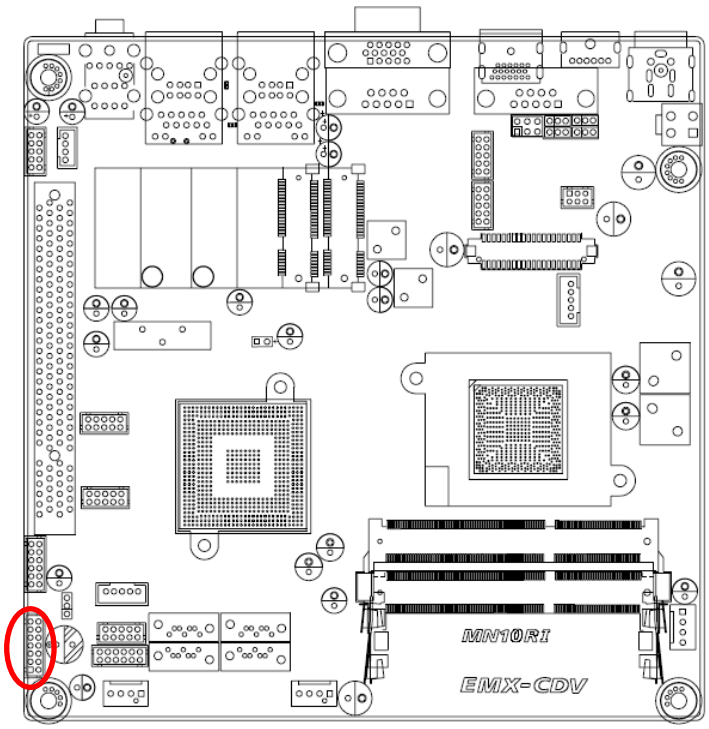
2.3.20 GPIO Connector (GPIO_CNT)

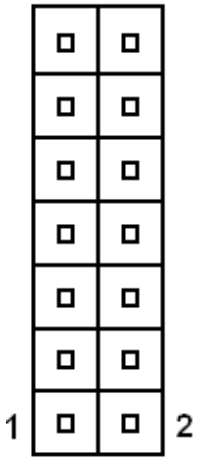




Signal	PIN	PIN	Signal
VCC	11	12	GND
SMBCLK	9	10	SMBDATA
SOGP0_4	7	8	SOGP1_4
SOGP0_3	5	6	SOGP1_3
SOGP0_2	3	4	SOGP1_2
SOGP0_1	1	2	SOGP1_1

2.3.21 Low Pin Count Connector (LPC)





Signal	PIN	PIN	Signal
-LDRQ1	13	14	5VDUAL
GND	11	12	VCC
GND	9	10	SERIRQ
LPC_CLK	7	8	LAD3
-LFRAME	5	6	LAD2
-PFMRST	3	4	LAD1
VCC3	1	2	LAD0